

Therefore, this case falls within the provisions of the Art. 57.1 (Turland & al., l.c.) because the name *Micromeria microphylla* “has been widely and persistently used for a taxon or taxa not including its type”, and to adopt it now for the Cretan species would be extremely confusing.

Consequently, it seems appropriate to propose the conservation of the name *Thymus microphyllus* with a conserved type to allow its continued application to the Maltese species. For this purpose, conservation with the type already proposed by Bräuchler (l.c.) seems a parsimonious and appropriate choice because the specimen

represents original material and fully supports the current use of the name, in its generally accepted narrow sense.

Author information

EDG: <https://orcid.org/0000-0001-9349-1328>

SBR: <https://orcid.org/0000-0003-2568-7278>

SBo: <https://orcid.org/0000-0002-1952-6059>

Acknowledgment

We kindly thank J. McNeill for his suggestions.

(2913) Proposal to conserve the name *Anethum segetum* (*Umbelliferae*) with a conserved type

P. Pablo Ferrer-Gallego^{1,2} 

1 *Servicio de Vida Silvestre y Red Natura 2000, Centro para la Investigación y la Experimentación Forestal (CIEF), Generalitat Valenciana, Avda. Comarques del País Valencià 114, 46930 Quart de Poblet, Valencia, Spain*

2 *Bodega Ferrer-Gallego, 46311 Jaraguas, Valencia, Spain*

Address for correspondence: P. Pablo Ferrer-Gallego, flora.cief@gva.es

DOI <https://doi.org/10.1002/tax.12783>

First published as part of this issue. See online for details.

(2913) *Anethum segetum* L., Mant. Pl.: 219. Oct 1771 [Angiosp.: *Umbell.*], nom. cons. prop.

Typus: Portugal, Beja, Cabeça Gorda, 23 Jun 1979, *Malato-Beliz & Guerra 16283* (MA barcode MA-01-00310950!; isotypi: MA barcodes MA-01-00311369!, MA-01-00325392!, MA-01-00357096! & MA-01-00357130!), typ. cons. prop.

The present proposal deals with the situation surrounding the name *Anethum segetum* L. (Mant. Pl.: 219. 1771) (*Umbelliferae*), which has long been applied to a species in a sense not including its type. *Anethum segetum*, *Meum segetum* (L.) Guss. (Fl. Sicul. Prodr. 1: 346. 1827), or *Ridolfia segetum* “(L.) Moris” (but see below) (Enum. Sem. Hort. Taur. 1841: 43. 1841; see <https://seedlists.naturalis.nl/content/ridolfia-moris>) are the traditional and currently accepted names of a species distributed throughout the Mediterranean region, extending to Portugal, the Azores, the Canary Islands, and the Arabian Peninsula (Tutin & al., Fl. Eur. 2: 352. 1968, sub “*Ridolfia segetum* Moris”; Plants of the World Online [POWO], <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:837543-1>). This species shows glabrous leaves finely divided into filiform leaflets, the upper often reduced to the inflated petiole, umbels with 10–60 slender, nearly equal rays, bracts and bracteoles absent, fruit 1.5–2.5 mm, ovoid-cylindrical, compressed laterally, ridges slender, scarcely prominent, vittae solitary, slender (Tutin & al., l.c.; Aedo in Castroviejo & al., Fl. Iberica 10: 282. 2003; Tison & al., Fl. France Médit.: 1837. 2014; Pignatti, Fl. Ital., ed. 2, 3: 592. 2018). The seeds and leaves contain an essential oil, and the plant has a strong odor. This species has been cultivated in Peru, where it has also escaped

to waste places (Mathias & Constance in Publ. Field Mus. Nat. Hist., Bot. Ser. 13(5A/1): 92. 1962). It is used as an herb in the pickle industry, can be eaten in its raw form or cooked, and is also used for medicinal purposes.

Linnaeus (l.c.) published *Anethum segetum* providing a short diagnosis “ANETHUM foliis caulinis tribus, fructibus ovalibus” followed by two synonyms: “*Anethum sylvestre minus*” cited from Bauhin (Pinax: 147. 1623; Prodr.: 76. 1620) and “*Foeniculum lusitanicum minus annuum, anethi odore*” from Tournefort (Inst. Rei. Herb., ed. 3: 312. 1719), and a complete description of the plant. No illustrations were provided in the protologue and none of the synonyms cited by Linnaeus from Bauhin and Tournefort are accompanied by an illustration. However, a potential syntype was mentioned, as “*Habitat in Lusitania. D. Vandelli. H. U. [Hortus Upsaliensis]*”. In this sense, if Vandelli’s material of Portugal exists, this material should have preference in a lectotype designation according to Art. 9.12 of the *Shenzhen Code* (Turland & al. in Regnum Veg. 159. 2018). Reduron (in Taxon 55: 208. 2006) mentioned that this name was evidently based on material cultivated in the Hortus at Uppsala, the seeds reported as having come from Portugal via Domenico Vandelli (1730–1816). [From Lisbon, Vandelli corresponded with one of the most renowned Bolognese naturalists, Ferdinando Bassi (1710–1774), a convinced “Linnaean” (Cristofolini & Biagio, Linneo a Bologna. 2007; Puerto Sarmiento, Ciencia de Cámara: Casimiro Gómez Ortega (1741–1818) el Científico Cortesano: 35. 1992). Linnaeus also exchanged letters with Vandelli, and both Bassi and Vandelli received career advice from him (correspondence cited by João Brigola in Coleções, Gabinetes e Museus em Portugal no Seculo

XVIII: 105–106. 2003; Letter VIII of Linnaeus, Uppsala, 12 February 1765 and letter from Ferdinando Bassi to Domingos Vandelli, Bolonha, 6 May 1766.) Unfortunately, I have not been able to locate any original material in any Linnaean and Linnaean-linked herbaria including UPS (Mats Hjertson, pers. comm.) that would be linked to the synonym by Bauhin (l.c.) or the acronym “H. U.” cited by Linnaeus in the protologue.

The lack of original material of *Anethum segetum* creates doubts about the precise application of the name. According to Reduron (l.c.), Linnaeus’s extensive description is a good match for *A. graveolens* L. (Sp. Pl.: 263. 1753), and accordingly a neotype for *A. segetum* was designated by him from a specimen preserved in the herbarium of Sébastien Vaillant at P, as: “*Anethum segetum* Grisley, foetidum [...]” & “*Anethum segetum*. V. Lusit. / *Foeniculum lusitanicum*, minus, annuum, *Anethi odore* I. r. h. 312”, Herb. Vaillant (P). This specimen is now barcoded P00436562 (image available at <https://science.mnhn.fr/institution/mnhn/collection/p/item/p00436562>). The sheet bears a stem with upper leaves and several mature and also immature umbels. The mature umbels bear well-developed fruits. The fruits of this specimen are elliptical, strongly compressed dorsally, with dorsal ridges slender, prominent, and with lateral wings. Thus, this material can be identified as belonging to *A. graveolens* (see Reduron, l.c.), a species widely distributed around the world and widely cultivated as a herb and often more or less naturalized, particularly in the Mediterranean region (Tutin & al., l.c.: 341; Wiersma & León, World Econ. Pl., ed. 2: 54. 2013). Therefore, Reduron’s neotypification would make *A. segetum* a synonym of *A. graveolens*.

A duplicate of the neotype was found in the herbarium of the Salvador family at BC (BC-Salvador 1765). During 1716 and 1717, Joan Salvador i Riera (1683–1725) and Antoine de Jussieu (1686–1758) made a botanical expedition around Spain and Portugal, in which the young Bernard de Jussieu (1699–1777), brother of Antoine, also took part. Both the Jussieu brothers and Salvador collected numerous plants that were later incorporated in their herbaria. The specimen at BC is very poorly preserved, and it consists of a stem, an undeveloped umbel (without fruits), and a separate leaf. The sheet bears an original label annotated as “*Foeniculum Lusitanicū* | minus, annuum, Ane- | thi odore Inst. rei. herb. 312 | *Anethum Segetum* V. Lusit. [handwritten by Salvador] | *Anethum segetum* L. [handwritten by Pourret] | In varis locis Lusitaniae in- | venimus [handwritten by Salvador]”. As was annotated on the label, the specimen was identified by Pourret as *Anethum segetum*.

Article 9.19(c) states: “The author who first designates (Art. 7.10, 7.11, and F.5.4) a lectotype or a neotype in conformity with Art. 9.11–9.13 must be followed, but that choice is superseded if [...] it is in serious conflict with the protologue, in which case an element that is not in conflict with the protologue is to be chosen [...]” In the case of *Anethum segetum*, the previously designated neotype is not in serious conflict with the protologue, and the neotypification proposed by Reduron (l.c.) was in accordance with the Code and is therefore effective.

Anethum segetum is a name that for over 250 years was unambiguously applied under the authorship of Linnaeus and currently used under *Ridolfia segetum* “(L.) Moris” (see Aedo, l.c.; Pignatti, l.c.; Plants of the World Online [POWO], <http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:847774-1>; The Plant List, <http://www.theplantlist.org/tpl1.1/record/kew-2421971>; Tropicos.org, <https://www.tropicos.org/name/1701376>; The World Flora Online (WFO), <http://worldfloraonline.org/taxon/wfo-0000402206>; World

Checklist of Vascular Plants (WCVP), <https://wcvp.science.kew.org/taxon/847774-1>), and therefore preserving the usage of this name is desirable. However, noting that the current neotype of the name is a specimen identifiable with *A. graveolens*, to preserve nomenclatural stability, conservation of the name *Anethum segetum* with a conserved type under Art. 14.9 is proposed here. A complete and well-preserved specimen at MA (barcode MA-01-00310950) is proposed as the conserved type, with four duplicates at MA (barcodes MA-01-00311369, MA-01-00325392, MA-01-00357096, and MA-01-00357130). This specimen shows all diagnostic characters and was collected in Portugal (Beja, Cabeça Gorda), a locality that matches with the provenance mentioned by Linnaeus in the protologue (“*Habitat in Lusitania*”).

Rejection of the present proposal would have an undesirable consequence because another name would have to replace what has been called *Anethum segetum* up to now, perhaps the very unknown and little-used *A. pusillum* All. (Auct. Syn. Meth. Stirp. Hort. Regii Taur.: 28. 1773). However, the unripe fruits in the specimen to be selected as the lectotype of *A. pusillum* by Santangelo & al. (in Phytotaxa: in press) suggest it corresponds to *A. graveolens*, so that *A. pusillum* would not be a synonym of *Ridolfia segetum* as was proposed by Chiovenda (in Ann. Bot. (Rome) 10: 21. 1912) and tentatively supported by Dandy (in Taxon 19: 618. 1970). Other often-listed synonyms in current databases include “*A. arvense* Besser” (Sem. Hort. Bot. Volhyn. 1820: [1]. 1820), which was not validly published (see <https://seedlists.naturalis.nl/?q=/content/anethum-arvense-bess>) and would anyway have been a later homonym of *A. arvense* Salisb. (Prodr. Stirp. Cap. Allerton: 168. 1796), nom. illeg.; *Apium junceum* Stokes (Bot. Mat. Med. 2: 155. 1812), an illegitimate replacement name for *Sison segetum* L. (l.c.: 252), which therefore does not apply; *Carum ridolfia* Benth. & Hook. f. (Gen. Pl. 1: 891. 1867), an illegitimate replacement name for *Anethum segetum* L.; and *Ferulago quercetorum* Bornm. (in Jessen & Spärck, Danish Sci. Invest. Iran 4: 16. 1945), an unused name of uncertain application. As a result, Spalik & Reduron (in Bot. J. Linn. Soc. 198: 19. 2022), in merging several genera, including *Ridolfia* Moris (l.c. 1841), back into *Anethum* L., recently proposed *A. ridolfia* Spalik & Reduron as a replacement name for “*Ridolfia segetum* Moris, Ind. Sem. Hort. Taur. (1841); Fl. Sard. ii. 212. t. 75 (1842); non *Anethum segetum* L., Mant. Pl. Altera 219 (1771)”.

There are some nomenclatural wrinkles to consider here. Most, though not all, authors have considered both *Meum segetum* of Gussone (l.c.) and *Ridolfia segetum* of Moris (l.c. 1841) to be based on *Anethum segetum* L.; however, both authors clearly indicated some differences, particularly in fruit characters, between their species concept and that of Linnaeus. Gussone (l.c.) nevertheless listed “*Anethum segetum*. *Lin. mant. 219?*” under his name and Moris (l.c. 1841) included “*Meum Segetum* Guss.! Fl. sic. Prod. 1. p. 346. et Suppl. p. 79” in his synonymy together with *Anethum segetum* sensu four authors other than Linnaeus, adding the comments: “*Obs. Anethum Segetum* Linn. Mant. alt. p. 219. cujus fructus ex descriptione « ovales, convexiusculi, striis 3, elevatis », num ad nostrum spectet valde licet dubitare, etsi synonymum a *Linnaeo* adductum *Foeniculum lusitanicum minus etc. Tourn.* Inst. p. 312, ex observatione clarissimi *Gussone* in herbario Tournefortiano, cum nostra planta congruat. Specimina in herbario Linnaeano desunt” (*Obs. Anethum Segetum* Linn. Mant. alt. p. 219. whose description of the fruit ‘ovate, convex, with 3 raised striae’ doubtfully pertains to our plant, although Linnaeus’s synonym of *Foeniculum lusitanicum minus etc. Tourn.* Inst. p. 312 matches our plant according to Gussone’s observation in the

Tournefort herbarium. There are no specimens in the Linnaeus herbarium) and “*Anethum autem Segetum* ab Auctoribus descriptum fructu ovato aut ovali, convexiusculo aut lenticulari, margine dilatato, complanato aut subalato cincto, a nostro certe diversum et ad *Anethi graveolentis* varietatem *minorem*, uti jam pridem tradidit clarissimus Brotero, referendum” (The *Anethum Segetum*, described by the authors [he had mentioned Linnaeus and Jacquin] as having a fruit ovate or oval, convex or lenticular, with a broadened margin, flattened or raised, is certainly different from ours, and should be referred to a smaller variety of *Anethum graveolens*, as the most illustrious Brotero [in Fl. Lusit. 1: 465. 1804] has indicated long ago).

Although a reference to the exclusion “of the name itself” is not explicitly mentioned in Art. 48.2 (as inclusion of the name is in the comparable Art. 52.2), this is clearly implicit in Art. 48.1 and so I conclude that Moris (l.c. 1841) excluded the type of *Anethum segetum* L. from his *Ridolfia segetum*. On the other hand, in listing Linnaeus’s name as a tentative synonym, Gussone (l.c.) did not exclude its type in publishing *Meum segetum* (L.) Guss.

The question of whether or not Moris (l.c. 1841) explicitly excluded the type of *Anethum segetum* (see Art. 48 Note 1) determines the status of not only his, but also Spalik & Reduron’s name. If *Ridolfia segetum* was considered to be based on *A. segetum* L., these authors could not have published a replacement name for it, since in publishing *A. ridolfia*, Spalik & Reduron would have explicitly excluded its Linnaean type by excluding the Linnaean name. Neither could they have published the name of a new taxon, despite their ref-

erence to a Latin description (in Moris, Fl. Sardoia 2: 12. 1842), since they failed to satisfy Art. 40 by indicating a type.

Given the conclusion that the Linnaean type was excluded by Moris, if this proposal to conserve the name *Anethum segetum* L. with a conserved type is accepted, this would leave *Ridolfia segetum* Moris and *Anethum segetum* L. as heterotypic synonyms. With conservation, there would be no necessity to replace the 250-year-old usage of *A. segetum* or *R. segetum* by most authors, as attempted by Spalik & Reduron (l.c.).

Finally, if the proposal to conserve the name *Anethum segetum* L. is rejected, the heterotypic *Ridolfia segetum* Moris could remain in use, but not as “*R. segetum* (L.) Moris” of most authors. However, if *Ridolfia* is included in *Anethum* as advocated by Spalik & Reduron (l.c.), a new name would be required for the taxon formerly known as *A. segetum*, perhaps one based on the obscure *Ferulago quercetorum* Bomm. or the just-published *A. ridolfia* Spalik & Reduron.

Author information

PPFG, <http://orcid.org/0000-0001-7595-9302>

Acknowledgements

I thank Prof. John McNeill, Dr. John Wiersema, and Dr. Angelo Troia for their advice, assistance, and valuable comments that improved this proposal. I thank the staff of the cited herbaria, Dr. Mats Hjertson (UPS), Dra. Neus Ibáñez (BC), Annalisa Santangelo (NAP), and Javier Fabado (VAL) for their help in the study of the herbarium sheets.

(2014) Proposal to conserve the name *Klukia* Racib. (fossil *Schizaeaceae*) against *Klukia* Andr. ex Besser (*Cruciferae*)

Dmitry A. German 

South-Siberian Botanical Garden, Altai State University, Lenin Ave. 61, 656049 Barnaul, Russian Federation

Address for correspondence: Dmitry A. German, oreoloma@rambler.ru

DOI <https://doi.org/10.1002/tax.12787>

First published as part of this issue. See online for details.

(2014) *Klukia* Racib., Osmund. Schizaeac. Juraform.: 5. Apr 1890, nom. cons. prop.

Typus: non designatus.

(H) *Klukia* Andr. ex Besser, Enum. Pl.: 104. 1822 [Angiosp.: *Cruc.*], nom. rej. prop.

Typus: *K. officinalis* (L.) Besser (*Erysimum officinale* L.).

Klukia Racib., published in a preprinted (Apr 1890) article “Über die Osmundaceen und Schizaeaceen der Juraformation” (from Bot. Jahrb. Syst. 13: 5. 15 Jul 1890 [‘1891’]), has been in continuous use since the time of its valid publication as the name of a fossil (Mesozoic) genus of *Schizaeaceae* (incl. *Klukiaceae*) (Seward, Cat. Mesoz. Pl. Jurass. Fl. 1: 129–132. 1900; Reed in Bol. Soc. Brot., sér. 2, 21: 103–105. 1947, in Taxon 4: 112. 1955; Bolkhovitina, Fossil Contemp. Spores Schizaeaceae: 11. 1961; Harris, Yorkshire Jurass. Fl.

1: 128–134. 1961; Krassilov in Paleontol. Zhurn. 1977(1): 127–133. 1977; Blame in Rev. Palaeobot. Palynol. 87: 175. 1995; White, Palynodata Inc. 2006, <https://paleobotany.ru/palynodata>; Taylor & al., Paleobotany, ed. 2: 460. 2009; Global Biodiversity Information Facility, <https://gbif.org>; Interim Register of Marine and Nonmarine Genera, <https://www.irmng.org>; Mindat.org, <https://www.mindat.org>; McClennen & al., The Paleobiology Database. 2017, https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=56105; all accessed 8 Apr 2022). According to Krassilov (l.c.), “*Klukia* is a textbook example of a fossil schizaeaceous fern cited by all manuals on palaeobotany of the last 80 years. This genus as also of great importance for palaeophytogeography” (translated from the Russian); apparently, this is still true 45 years after having been written.

There is another generic name *Klukia* applied to a genus of *Cruciferae*, which, unlike the first one, is rarely mentioned in the